

though less frequently than is the rule, with pain in the back. With almost mathematical precision an eruption appeared on the end of the third or beginning of the fourth day, and was nearly always observed first on the face. It then spread over the body, to be most marked, after the face, on the fingers. It showed itself also, distinctly, upon the palms of the hands and soles of the feet.

4. The eruption presented the appearance of smallpox. It was papular, to become later vesicular and then pustular. It was at times and in places umbilicated; it was in severer cases confluent. The eruption dried up to form crusts and leave pits, which were quite pronounced in the severe case described as having occurred in June. As I saw the cases twelve to fourteen days after its first appearance, the eruption presented the condition characteristic of this period in the history of smallpox.

5. The eruption ran a characteristic course also over the body. It appeared on the face, to extend gradually over the trunk and be most distinct, next to the face, on the fingers and feet. As the eruption became vesicular on the extremities and trunk it became pustular on the face, and as it became pustular on the body it dried up on the face. The eruption showed, therefore, its regular advance and the various phases in regular sequence characteristic of smallpox.

The question arose at once, as it always arises under similar circumstances, as to what other disease might be mistaken for variola. The opinion had been expressed in some quarters that this disease was an aggravated chicken-pox. Against this view speak the facts that:

1. The disease was preceded by prodromes, chill, fever, headache, dizziness, nausea, etc., the eruption appearing on the third day, whereas in chicken-pox the disease, without prodrome, is announced at once by the eruption on the first day.

2. The eruption of chicken-pox appears as vesicles containing a clear fluid, looking in many cases like drops of water. Only individual cases may become pustular. In this case most of the vesicles became pustules, and in some of the cases the pustules became confluent.

3. The eruption of varicella appears, as a rule, upon the neck and chest (though sometimes upon the face) to the number of ten to fifty, or sometimes, but very rarely, as many as two hundred or more over the whole body, and always irregularly, never uniformly. It is only an individual case which shows as many spots as two hundred in an epidemic. Most of the cases show only ten or twelve spots, one or two of which may become pustular and only one or a very few of which may leave a scar. There is never any such accumulation on the fingers as was manifest in this epidemic, and there is never the uniform spread

from the face downwards as in a real variola.

4. The vesicles of chicken-pox vary in size from a pin-head to a pea, exceptionally from a dime to a dollar. The large vesicles are always lax, never full and distended. The vesicles and pustules in this epidemic were remarkably uniform in size, except, of course, where they had become confluent. The non-umbilicated sacs were fully distended.

5. The constitutional symptoms, malaise, headache, fever of varicella, slight in degree, disappear with the disappearance of the eruption. They last thus, as a rule, but a few hours, and rarely extend to a few days. These patients whom I saw were now convalescent, but had been ill for the greater part of two weeks.

6. A point upon which I lay great stress—chicken-pox is a disease of childhood, smallpox of all ages. Chicken-pox is rare after ten, and is extraordinarily rare after the age of twelve.

In drawing these lines I am not unmindful of the fact that certain authorities still obstinately adhere to the belief that varicella is only an attenuated or hybrid variety of variola.

Measles, which some of the people held this disease to be, could not be considered for a moment. There was no preceding coryza. The eruption of measles shows neither vesicles, pustules nor scars. There could, of course, be no question of drug eruption, syphilis or herpes assuming such epidemic proportions.

The diagnosis was facilitated by the fact of the duration of the disease—that is, by the period at the time I saw it. It is always more difficult at the start. Individual or isolated cases require at the beginning the consideration of many diseases. Thus Marson says of his experience in a London hospital that upwards of twenty diseases have been mistaken in the last few years in the early stages of the disease as smallpox, and the patients have been sent as having smallpox to the small-pox hospital.

I had the same good fortune in being able to recognize, in the same way, I might say at a glance, a genuine case of smallpox at Huntington, W. Va., a few years ago, where there had been previous to my visit some difference of opinion among the physicians. The town was here also in a state of considerable excitement, and watchmen had been placed at the doors of the infected houses. But by the time I saw the case the whole body was covered with vesicles and pustules, some of which were umbilicated and some of which had become confluent on the extremities, so that the diagnosis was easy enough.

The diagnosis was made easier in these cases also by the fact that the individuals had not been vaccinated. They therefore had not the protection

which is given by vaccination; and, further, the cases did not show the anomalous forms which are seen after vaccination, in that, as Morrow tells us, "vaccination denaturalizes smallpox, deranges the original order of the disease and effaces its most distinctive features."

I suggested to the citizens the necessity of thorough vaccination of the entire community, assuring them that the disease was mild, but that it would become dangerous with accumulated cases, and that with systematic vaccination no new cases would occur after the end of a week. I learned afterwards that the health officer had reached the same conclusion, and had ordered a house-to-house vaccination after subdivision of the town into sections. In reaching this opinion we were both of us supported by a majority of the local physicians. I would lay stress upon this point, because in the reports which have been made in the newspapers and in one of our medical journals the impression was made that the local physicians had diagnosed the disease as chicken-pox. Now the truth is, I heard no such opinion expressed. On the contrary, the disease was regarded as variola, and so positively had this opinion been expressed in one case that the name "smallpox" had been tacked up in big letters on a house, about which a rope had been drawn and at which an officer was stationed to secure isolation. This case, one of those which I have reported, was of exactly the same character as the rest. The physicians whom I saw had fully appreciated the character of the disease. Thus, we were able to impress upon the citizens the necessity of immediate vaccination of all unvaccinated members of the place, and to give them the assurance that the epidemic would cease so soon as general vaccination was secured.

While there was no great objection to the isolation of cases, such confinement seemed to me entirely superfluous. It entailed hardship and harm also upon a great many unaffected members of these various households. I took occasion to repeat what I have said before, that the maintenance of a pest-house for the isolation of cases of smallpox is a superfluous expense, and is a reflection upon the intelligence of a community. In fact, in civilized centres cases of smallpox have become so rare that the pest-houses are more profitably used for the separation and treatment of cases of consumption. In protection against smallpox it is only necessary to practise vaccination, for vaccinia is smallpox, the smallpox of the cow. Vaccination protects exactly as does a previous attack of smallpox. It is the variola maxime benigna, and, although it is severe enough to secure protection for a long time, it is unfortunately not severe enough to secure protection for all time, so that re-vaccination becomes a necessity. It is the alphabet of our know-